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FIVE-YEAR REVIEW REPORT

McKIN COMPANY
HAZARDOUS WASTE SITE

GRAY, MAINE

Prepared by:

U.S. Environmental Protection Agency

Region I

Boston, Massachusetts

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INTRODUCTION

Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by section 121(c), and section 300.430(f)(4)(ii) of the National Oil an Hazardous Substances Pollution Contingency Plan (NCP), a statutory five-year review is required for remedial actions selected on or after October 17, 1986. The review must be completed within five years of the initiation of the remedial action, and every five years thereafter, for sites which will not allow for unlimited use and unrestricted exposure after attainment of the performance standards stated in the Record of Decision (ROD).

A Level I five-year review is required at the McKin Company Site in Gray, Maine to confirm that the remedial actions and associated performance standards as presented in the Record of Decision of July, 1985 adequately protect human health and the environment (i.e., the remedial action is operating and functioning as designed, institutional controls are in place and are protective), and to evaluate whether original performance standards remain protective of human health and the environment.

Although the Record of Decision is dated pre-October, 17, 1986, Region 1 has made a policy decision to implement the first five-year review five years after the award of contract for the remedial action. The McKin Company Site contract was awarded to Canonie Engineers on March 16, 1987. This review shall be completed no less often than every five years after the award of contract for the remedial action to assure that human health and the environment are being protected by the remedial action chosen.

BACKGROUND

The McKin Superfund Site (Site) is located on the west side of Mayall Road between Route 115 and Pownell Road in Gray, Maine. The Site is approximately seven (7) acres. The topography of the Site is relatively flat. To the east of the Site, beyond Mayall Road, the land slopes steeply eastward to the Royal River. The Site area is located on a glacial outwash plain comprised of stratified sand, gravel, and boulders overlying heavily weathered granitic bedrock. Site surface drainage is contained on-site and incident water either evapotranspirates or percolates into the soil. Neighboring properties include residential areas, wooded areas, and farmland.

The McKin Company operated a waste collection, transfer, and disposal facility at the Site between 1965 and 1978. From 1972 to 1977, the facility handled between 100,000 and 200,000 gallons of waste annually. In 1973, complaints from nearby residents of odors and discolored laundry alerted local officials to potential

groundwater contamination. Subsequently, the town of Gray collected and analyzed groundwater samples from residential wells. Volatile Organic Compounds (VOCs), principally trichloroethylene (TCE) and 1,1,1-trichloroethane were detected in groundwater samples. As a result, an Emergency Health Ordinance was issued by the Town of Gray which placed a moratorium on any new construction in the vicinity of the Site.

In 1977, the Site contained approximately 22 metal storage tanks, an asphalt lined lagoon, a sump manhole, a concrete block building, an incinerator, and over 20 55-gallon drums. In September 1977, laboratory analyses of samples from the tanks collected by Energy Resources Company, Inc. (ERCO) detected numerous chemicals including TCE, trichloroethane, xylenes, freon, and acetone. Both TCE and xylenes were detected in soil samples taken at that time.

Also in 1977, EPA contracted with Fred C. Hart Associates to conduct a hydrogeologic assessment of the area. The results of that assessment showed that contamination was present in many private wells in the vicinity of the Site. In December of 1977 contaminated private wells were capped and emergency water supplies were provided for residents. In 1978, public water service was extended to the area. A state-supervised removal of liquid waste at the Site began in 1979.

On September 1, 1983 the Site was listed on the National Priorities List and ranked thirty-first of 406 sites. Also in 1983, the Maine Department of Environmental Protection (DEP) and EPA signed a Cooperative Agreement which designated the Site as a state-lead site. In August of 1983 Interim Remedial Measure work was begun under the oversight of the Maine DEP. This work included removal of tanks, drums, and liquid waste from the Site and the installation of a chain-link fence.

Between March and June of 1984, groundwater and soil samples were collected as part of the Remedial Investigation (RI) by Camp Dresser and McKee (CDM) under contract to the Maine DEP through a cooperative agreement with EPA. Additional sampling was conducted by the State of Maine in 1984. The sampling detected seventeen hazardous substances in on-site soil. The primary contaminant, TCE, was detected in on-site soil in concentrations exceeding 1,000,000 ppb. TCE was detected in off-site monitoring wells in concentration up to 29,000 ppb. Concentration of 1,1,1-trichloroethane in groundwater exceeded 450 ppb.

In March 1985 a Feasibility Study (FS) and a Risk Assessment were completed. The Risk Assessment identified the primary health and environmental risk as potential exposure to contaminated groundwater. The FS evaluated eight alternatives for on-site source control and four alternatives for off-site control.

The Record of Decision (ROD) was signed by the Regional Administrator on July 22, 1985. The ROD states that on-site aeration of contaminated soils and construction of a groundwater Extraction and Treatment System is the selected remedy for the Site. The ROD also mandated off-site disposal of remaining drums, further testing of petroleum contaminated soils, an off-site groundwater and surface water monitoring program, and Site removal and closure activities. Performance Standards of 100 ppb TCE for soil, and 28 ppb TCE and 92 ppb 1,1,1-trichloroethane for groundwater were established in the ROD.

REMEDIAL ACTIONS

Remedial Design/Remedial Action (RD/RA) at the Site is being accomplished in two Operable Units. The first Operable Unit addressed the on-site aeration of contaminated soil and Site closure activities. The second Operable Unit is the off-site groundwater Extraction and Treatment System.

In 1985, two of the Potentially Responsible Parties (PRPs) expressed their willingness to start the Remedial Action (RA) for the first Operable Unit. Since a Consent Decree (CD) had not yet been entered by the EPA and the PRPs, EPA issued a Unilateral Order for the RA to commence. In July, 1986 thirteen other PRPs came forth to assist with the soil remediation, and EPA issued a second Unilateral Order.

The purpose of the on-site soil remediation was to remove the source of groundwater contamination. Canonie Engineers, under contract with the PRPs, conducted a pilot-scale soil remediation study at the Site which utilized low temperature thermal aeration in an enclosed environment. Results of the pilot study were published in an April 1986 report. Full-scale aeration of the VOC contaminated soil began on July 8, 1986 and was completed on February 3, 1987. A "Petroleum Area Soils Characterization and Remediation Analysis" was submitted to EPA and Maine DEP in January, 1987. The agencies approved a plan to treat petroleum contaminated soil which was implemented between March 13, 1987 and April 17, 1987.

Site demobilization and final closure was completed on June 23, 1987, followed by the issuance of a report in July 1987 entitled "Soil Remediation and Site Closure, McKin Superfund Site". A total of 11,456 cubic yards of contaminated soil were excavated, treated, verified analytically to insure a mean residual concentration not exceeding 100 ppb TCE, and backfilled. The demolition of Site buildings, disposal of remaining drums and an underground storage tank, disposal of debris and grading of the Site was conducted pursuant to a Canonie Engineers report of October, 1985 entitled, "Preliminary Site Removal, Disposal, and Closure Work Plan." This action was completed with the submittal of the "Soil Remediation and Site Closure" report of July, 1987.

The soil aeration process concluded the first part of the Remedial Action required. In September, 1987 the CD was signed by the PRPs. The CD was entered into the United States District Court, District of Maine, in May of 1988 and the groundwater clean-up plans began in June of that year. This CD was an agreement between EPA, MEDEP, and 320 PRPs who would be responsible for conducting and financing the clean-up efforts. This Consent Decree contained provisions for final soil remediation and Site closure activities as well as the design and construction of a groundwater Extraction and Treatment System and long-term monitoring.

In March 1989, Sevee & Maher Engineers, Inc., consultants for the PRP group, submitted a "Groundwater Remediation and Monitoring Project Operation Plan" and a "Groundwater Remediation and Monitoring Work Plan" to EPA and Maine DEP. These plans detailed the hydrogeologic investigation, pilot-scale treatability study, and groundwater Extraction and Treatment System design which was undertaken during 1989. The hydrogeologic study involved the installation of additional monitoring wells, geophysical surveys, permeability testing, an aquifer test, and groundwater modeling.

The purpose of the off-site groundwater remediation was to prevent Site contaminants from entering downgradient water supplies and polluting potential drinking water sources. The Groundwater Extraction and Treatment System proposed by the PRPs consisted of four extraction wells in the portion of the groundwater contaminant plume near the Site and a treatment system incorporating an air stripping unit followed by aqueous phase granular activated carbon adsorption and vapor phase granular activated carbon adsorption. EPA and Maine DEP had some concerns relating to the portions of the groundwater contaminant plume which would not be remediated by the proposed design. However, in the interest of initiating groundwater remediation, the parties to the Consent Decree agreed to phase the construction of the groundwater remediation system. This phased approach allowed the construction of a remediation system to begin remediating the portion of the plume nearest to the Site and the completion of a Phase II study to collect additional hydrogeologic and system performance data to be used in an evaluation of potential expansion of the system.

The Phase I design of the groundwater remediation system was approved by EPA and Maine DEP in June 1990 and construction was complete by September 30, 1990. On October 10, 1990 EPA certified that the system was fully operational. A month-long treatability study was then conducted to insure that the treatment system was operating as designed. Following the review of the data from the treatability study and approval of an Operations and Maintenance Manual, EPA and Maine DEP designated April 15, 1991 as the official start date for the first phase of the groundwater remediation system.

During the winter and spring of 1991, a hydrogeologic study was completed by the PRPs to further enhance their knowledge of the flowpaths. The Phase I groundwater remediation system is presently operating and functional, and EPA is continuously evaluating the performance of the system. The PRPs are continuing to collect data from the hydrogeologic study and from the operation of the groundwater remediation system. This data, along with a groundwater model which is currently being developed, will be evaluated by the summer of 1993 when the PRPs will submit a design to expand the extraction system, or an evaluation showing that it is not technically practicable to expand the system.

SITE VISIT

On August 28, 1992, the Remedial Project Manager, Sheila Eckman, visited the Site. The Groundwater Treatment Plant and two subsurface infiltration beds are within the fenced area on the property of the former McKin Company facility. The surface of the infiltration beds, and unused areas of the property, are vegetated with no signs of excessive erosion. Public access to this area is restricted. The fence surrounding the facility is intact and the entire perimeter of the site is posted.

On the day of the site visit, the Groundwater Extraction and Treatment System was in normal operation, with the central infiltration bed in use. No ponding of water or obvious depressions were evident on either of the infiltration beds. All of the monitoring wells and extraction wells observed were intact and locked, preventing public access.

The Gray Town Manager, Mr. Paul Bird, was contacted regarding restrictions on the installation of drinking water wells within the groundwater contaminant plume in the vicinity of the site. He confirmed that these restrictions are in place on a permanent basis and the town has no intention of releasing them.

ARARs section

The five-year review process mandates that the Applicable or Relevant and Appropriate Requirements (ARARs), set in the ROD be reviewed at this time. The McKin Company Site is a pre-SARA Site, whose ROD only contains health based Performance Standards and not ARARs. Presently the groundwater Extraction and Treatment Remedial Action is not complete and the performance standards have not been met. When these performance standards are met, EPA will evaluate whether the levels attained are in compliance with the ARARs at that time. This issue shall be addressed in future five-year reviews.

PROTECTIVENESS

The soil aeration Remedial Action was a measure of long term protectiveness. There has never been a hazard to exposure with surface soil. The threat has always been to the groundwater quality. The contaminants were leaching into the groundwater providing a transport system into the environment. Now that the source of contamination has been removed there is no longer a threat of further groundwater contamination and the soil still remains harmless.

Since the startup date in April 1991, the Groundwater Extraction and Treatment System has been operating and functioning. The pumping efforts are progressing and TCE is being removed from the extracted groundwater. As stated in the CD, the system will operate for 5 years or until performance standards are reached. If performance standards are not reached at the end of 5 years then EPA, MEDEP and the Settling Parties will re-evaluate the performance standards and the Groundwater Extraction and Treatment System for protectiveness.

NEXT REVIEW

EPA must complete a five-year review every five years, from the award of contract, until the performance standards stated in the ROD have been reached, and the Site allows for unlimited use and unrestricted exposure. This implies that EPA must conduct the next review in 1997, since the above conditions have not been met. The next five-year review shall include a synopsis of the contents of this review, an exhaustive review of the groundwater Extraction and Treatment System and the changes it may have undergone, and the necessity for further reviews.